



# Use of Information Technology In Cost Management

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June 2017

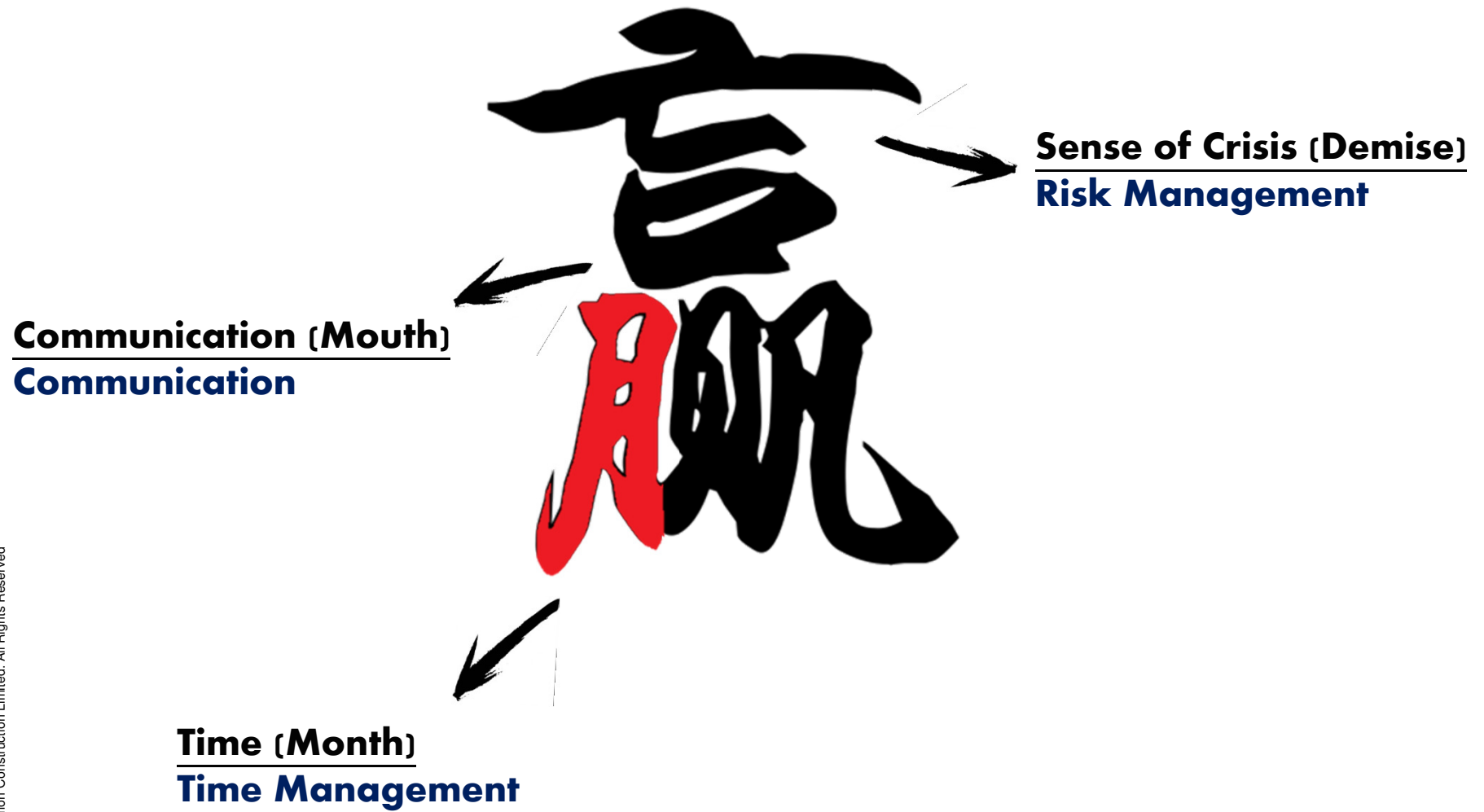


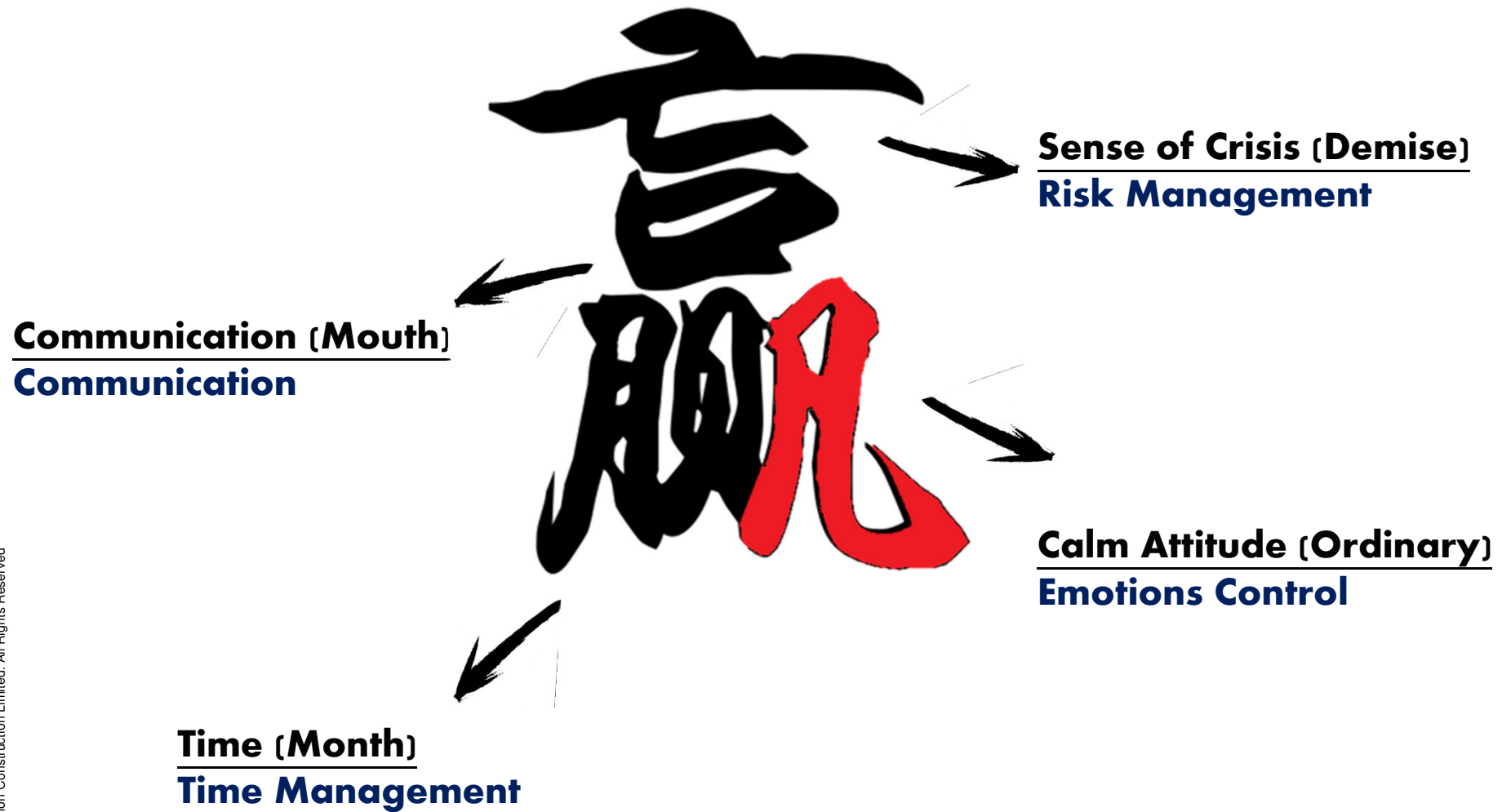
**Sense of Crisis (Demise)**  
**Risk Management**

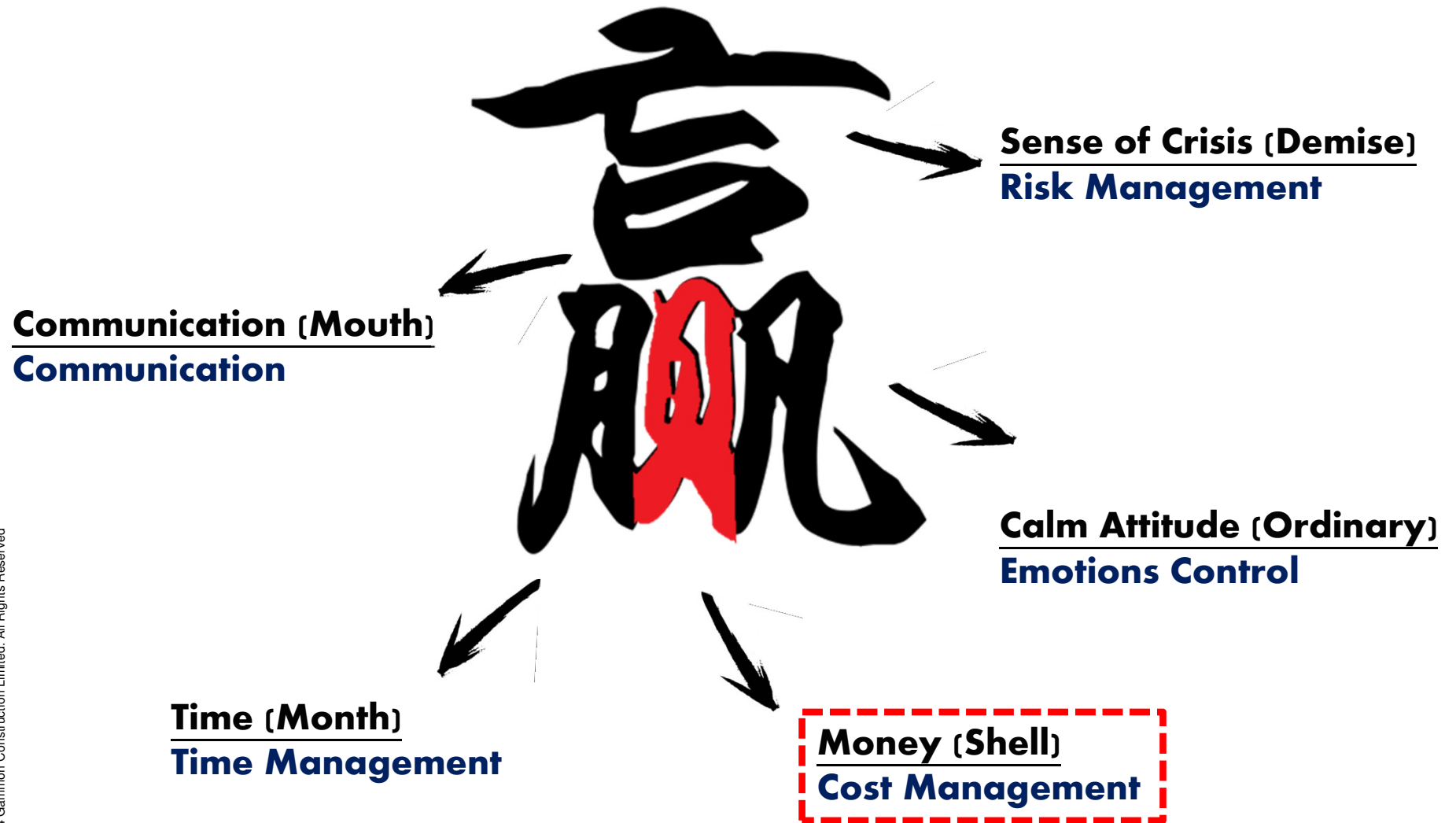
Communication (Mouth)  
Communication



Sense of Crisis (Demise)  
Risk Management







## Why Square Hole of an Ancient Chinese Coin?



# Square Hole of an Ancient Coin...



**Save Material Cost  
in Production**

**Easy Storage**

**Easy to Count**



# A String of Coins...



腰纏萬貫



**Facilitate Cash Control**







The Apple Pay logo, consisting of the black Apple logo followed by the word 'Pay' in a black sans-serif font.

# Project Cost Management



# Project Cost Management



**Style 1:**  
**Effective Control** on Cost

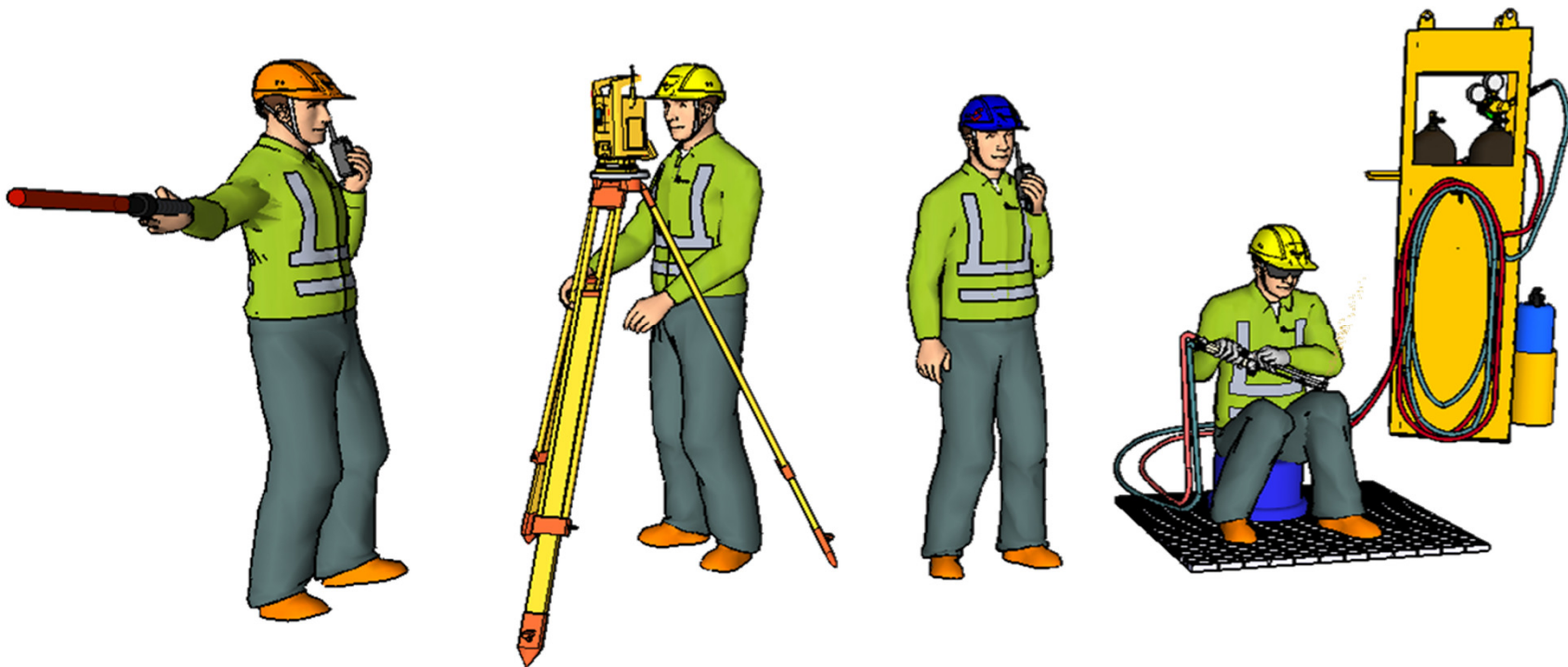


**Style 2:**  
**Streamlining Process** to Enhance Productivity



**Style 3:**  
**Optimising** Resources

# Labour Cost Management with Information Technology



# Digital Labour Allocation System

Labour

Frontline Supervisor

Administrator



Hand Key System

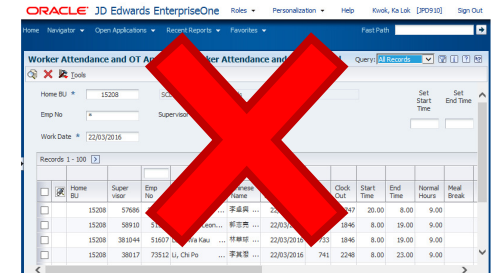


**Gammon** Work Time In & Out Report 員工考勤記錄  
08/04/2016 (Fri)

Job Site 工地編號 BDG 13618 TH...  
Supervisor 監督人 208303 Rai. T...

Emp No. 員工編號	Employee Name 員工姓名	Trade 工種	Work In 出工時間	Work Out 收工時間	No Meal 午飯直落 工作小時	Reason for 1 工作原因
293885	Rai. Rabin	Building Rigger	07:04	06:00	19:30	
356424	Gurung, Deepak	Building	07:10	08:00	19:30	
421033	Rai. Pawan	Building	07:10	08:00	19:30	

Manual Time Sheet



**Gammon** Labour Allocation System

Allocation Transaction Import Setup Export

Job No. 15208 - SCL1111 - Hung Hom Tunnel

Ganger Cheung Wai Shun (242215)

Work Date 2016/03/04

Q Search H Save

Hand key Data to Labour Allocation System Directly

**Streamlining Administration Process**





# Labour Allocation System – Mobile App


Labour Allocation System 中


Job No. 15208 - SCL111

Work Date 18 Jan 2016


- 

**Chu Wo Yuen**  
Charge-Hand Rigger  
Emp No #255128
- 

**Wong Yar Yat**  
Charge-Hand Rigger  
Emp No #49188
- 

**Cheung Shing**  
Charge-Hand Rigger  
Emp No #37982
- 

**Leung Kam Yau**  
Rigger

 **CHAN SAU MUI**  
Labour  
Emp No #810A000000

Work Date 08/08/2016  
Time In 06:31 Time Out 18:46

Start Time 08:00 AM  
End Time 06:30 PM  
Lunch Hrs Worked  9.5 Hrs

Reason  
Remark

**Details** DELETE

Hrs 9.5  
OT   
Activity B2 - Electrical Syste  
Location North Top Down  
ISC \ CN \ EI Ref  
Contra Charge   
Activity Detail  
Outline

+ ADD

SUBMIT ALLOCATION

SUBMIT TIMESHEET ONLY

Efficient Data-logging Process

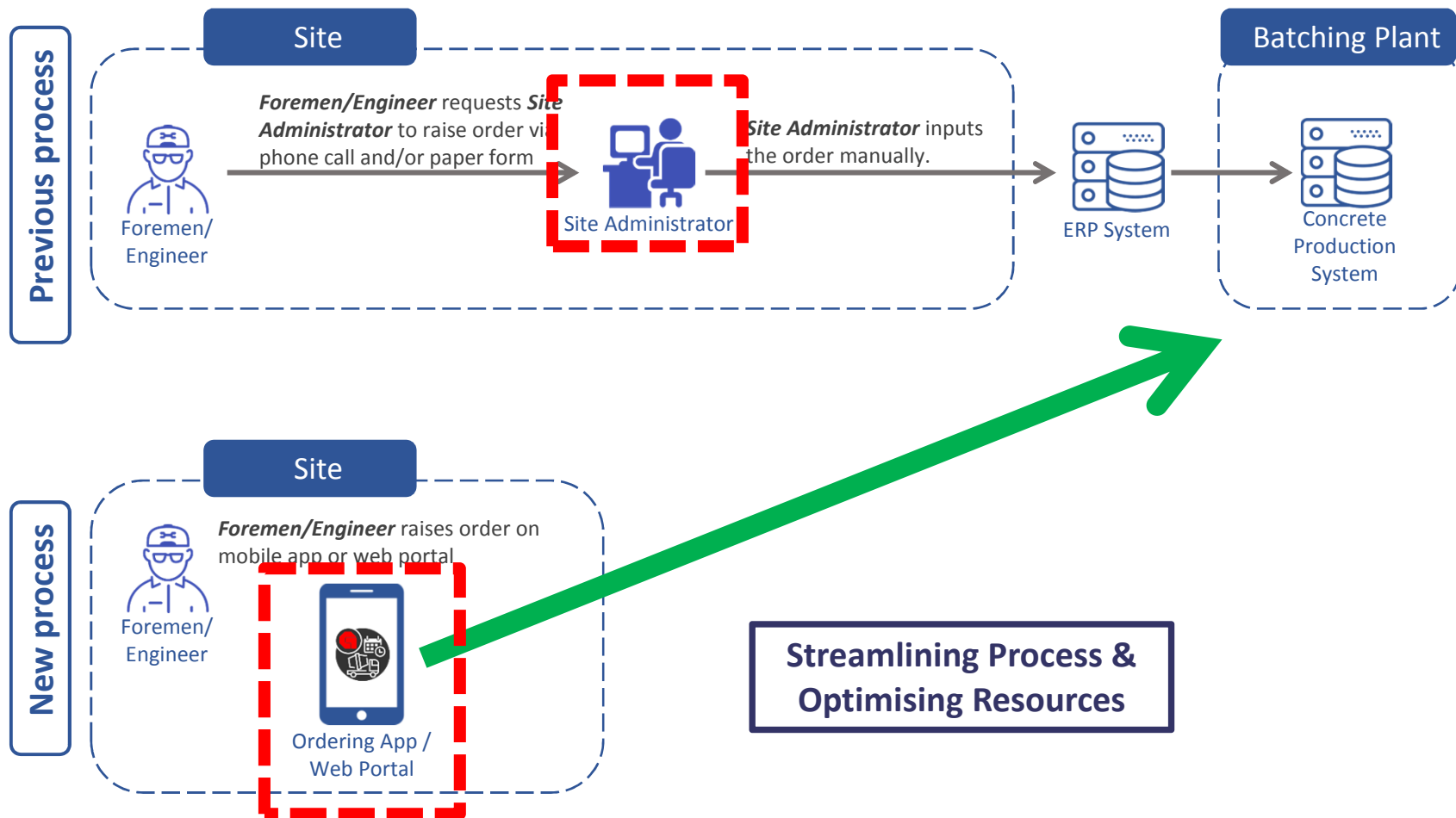
Effective Gang Control

Centralised Searchable Database


# Concrete Cost Management with Information Technology



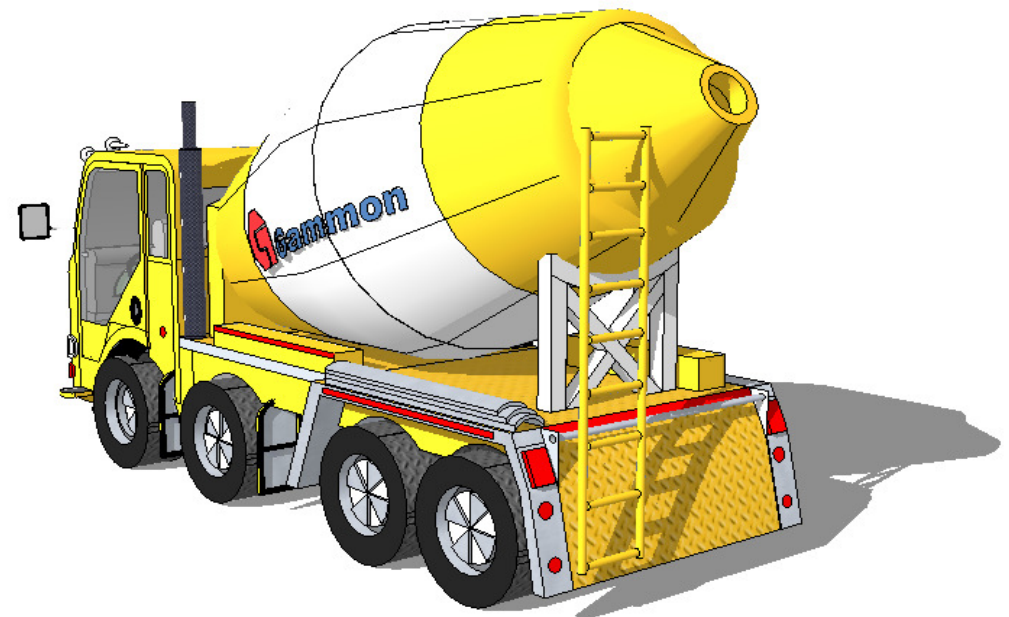
# I. Concrete Ordering Mobile App



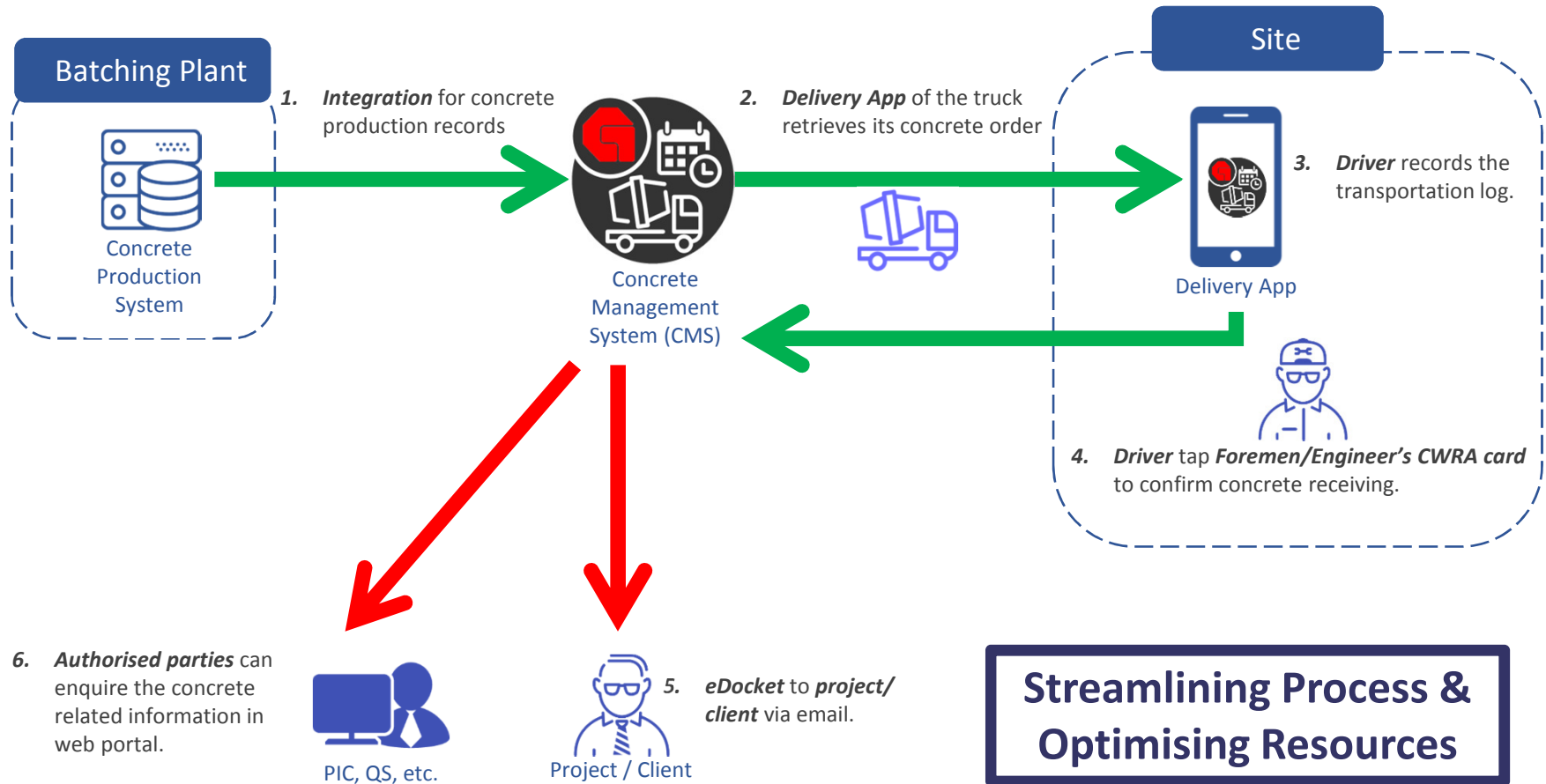
# I. Concrete Ordering Mobile App

Ordering Detail	
1	CSD - 10 MPa CSD - 100mm 
Grade	CSD - 10 MPa
Slump	CSD - 100mm
Temperature Control	No
Mix Code	325-4B44BKK2C
Plant	Batching Plant -
Order Qty	1
First Load On Site	4:48 PM
Load Per Hour	1

**Streamlining Process & Optimising Resources**



# II. Concrete Delivery Mobile App



# II. Concrete Delivery Mobile App

**Streamlining Process & Optimising Resources**

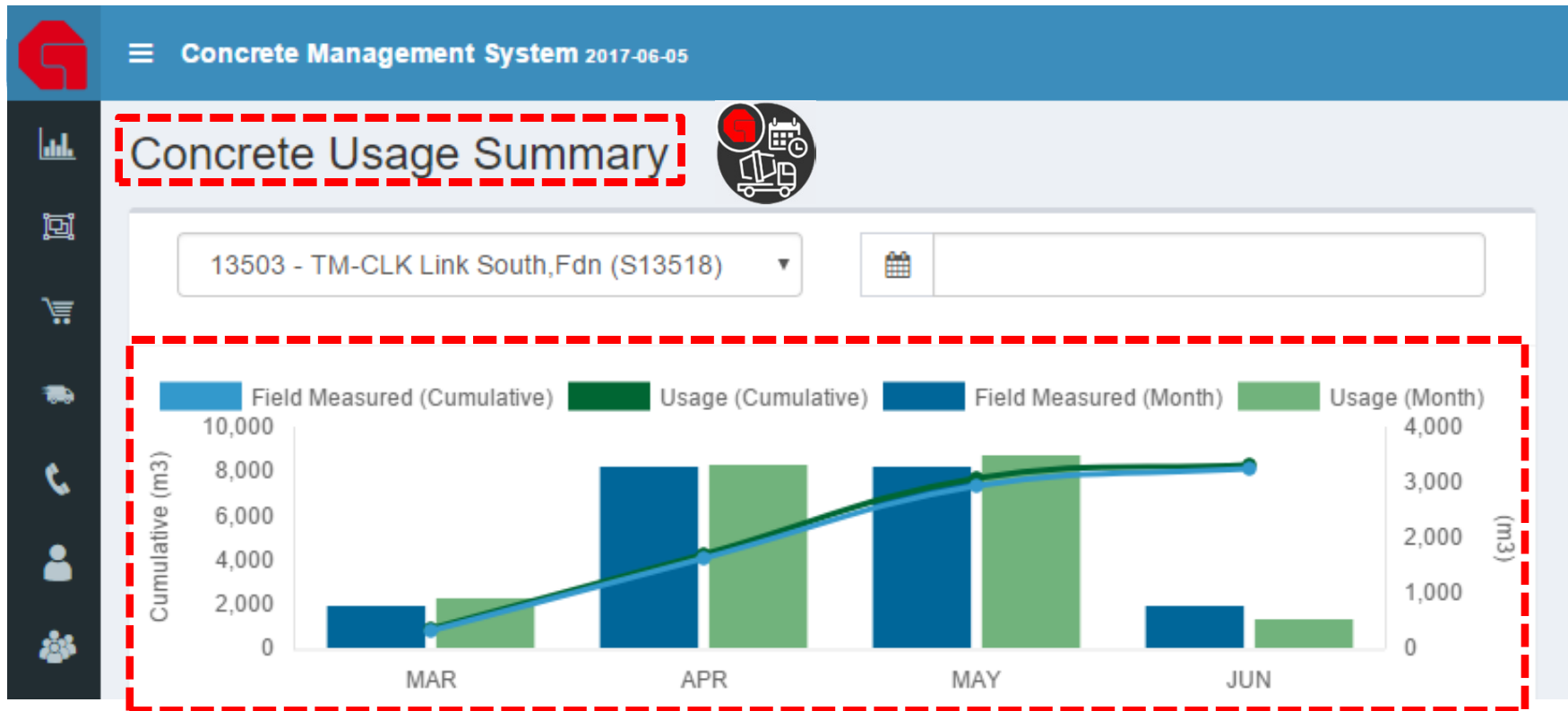
**Before discharge:**  
Driver to tap worker card of site frontline to confirm concrete receiving



**After discharge:**  
Driver to tap worker card of site frontline to confirm concrete return quantity (if any, optional)



# III. Concrete Usage Data Dashboard



**Effective Control on material wastage**

# Similar Method applied in Structural Steel



QR Code Label on modular struts



	A	B	C
1			
2		ID:	C-97-355-01
3		Size:	305x305x97kg/m UC
4		Steel Grade:	S355J0
5		Shipment No.:	SH20110424
6		Mill Cert.:	20110979
7		Heat No.:	113-10955
8		Spec:	BS EN10025-2:2004 S355J0+AR:2004
9		Current Location:	Depot
10		Previous Location:	N/A
11		Reservation:	N/A
12		Length:	12m
13	Weld Tests	Visual	Pass
14		MPI	Pass
15		Ultrasonic	N/A
16	Remark:		

- Administration costs ↓
- Minimise loss of materials
- Effective cost control
- Maximise resell value of materials

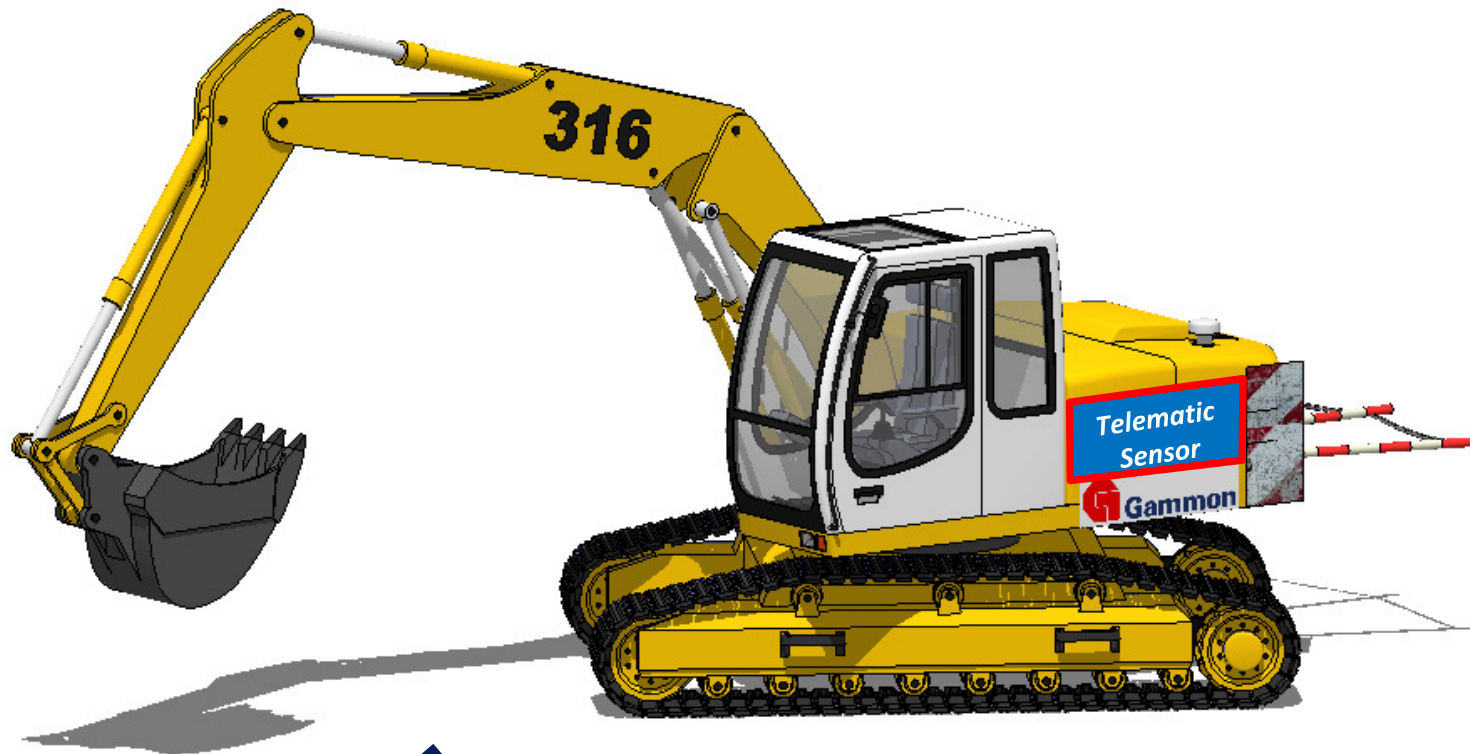
## Material Specifications



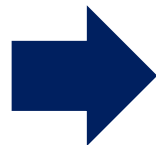
# Plant Cost Management with Information Technology



# Plants Telematics

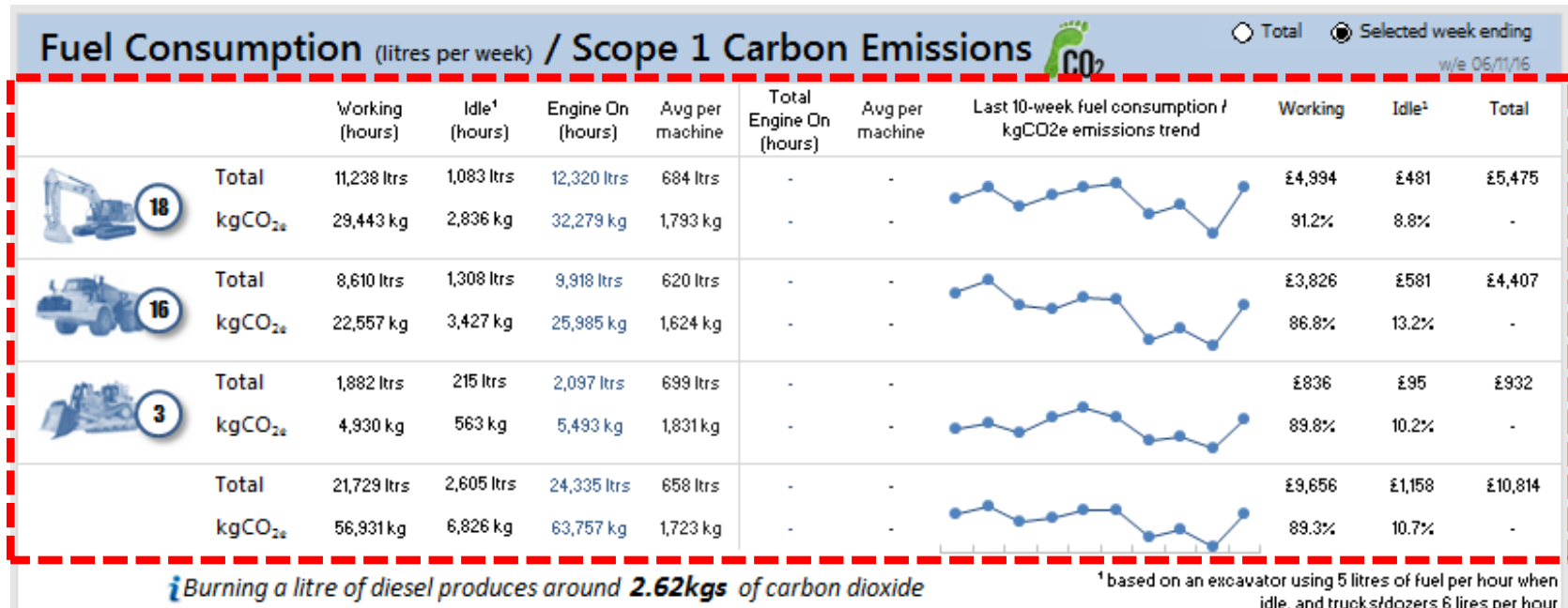


Server on  
Internet



Utilisation performance of plant  
(Idling hours, working hours, fuel usage)

# Plant Telematics – Fuel Costs



**Effective Fuel Cost Control of Each Plant**  
**(Diesel Usage, Idling Time & Cost, Total Fuel Cost etc.)**  
**-> Maximising Plant Utilisation**

# Plant Telematics – Operator Performance

Machine operator utilisation performance View Average   Top  Bottom

Rank (out of 37)	Plant Number	Machine Type	Working (hours)	Idle (hours)	Engine On (hours)	Total Man Hours	Percent	Fuel (ltrs per week)
1	EX15T15	TRACK EXCAVATORS	18.6	13.2	31.8	9.0	206.7%	293 ltrs
2	EX40T28	TRACK EXCAVATORS	32.5	5.6	38.1	36.0	90.3%	1,305 ltrs
3	DT30T33	ARTICULATED TRUCK	34.2	1.8	36.0	45.0	76.0%	725 ltrs
4	RD13T14	WHEELED EXCAVATOR	32.5	14.5	47.0	46.0	70.7%	199 ltrs
5	DZ6T07	TRACK TYPE TRACTOR	31.6	9.2	40.8	45.0	70.2%	879 ltrs
AVERAGE			22.4	12.7	35.1	42.6	52.5%	658 ltrs

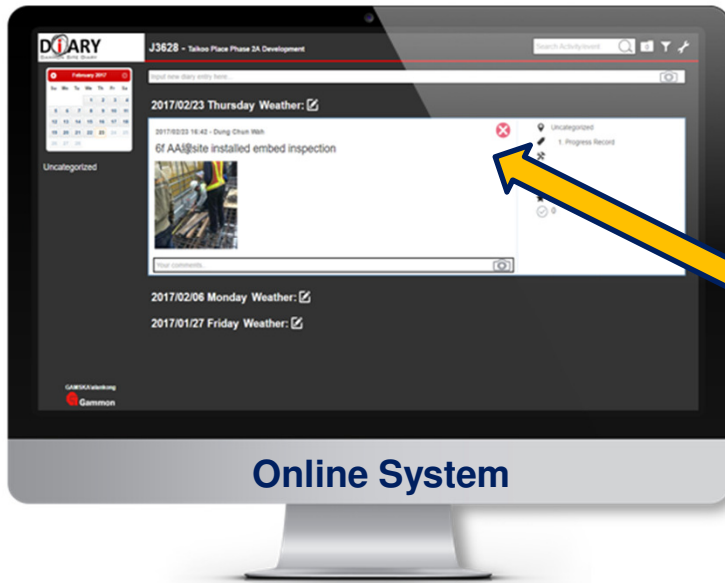


**Effective Control on Operator Performance**  
**(Man Hours, Idling Time, Engine-On Time etc.)**  
**-> Maximising Plant Utilisation -> Cost-Control**

# Gammon BOT & Gammon Cloud



# Gammon BOT & Site Diary System



Online System



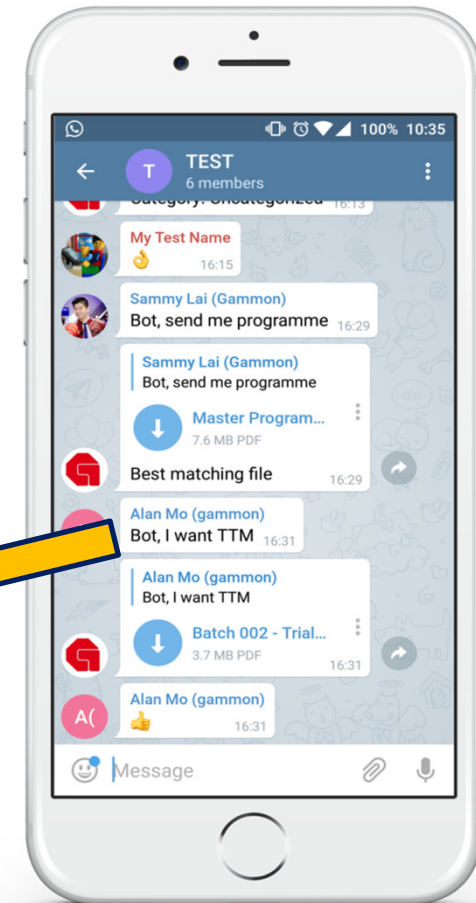
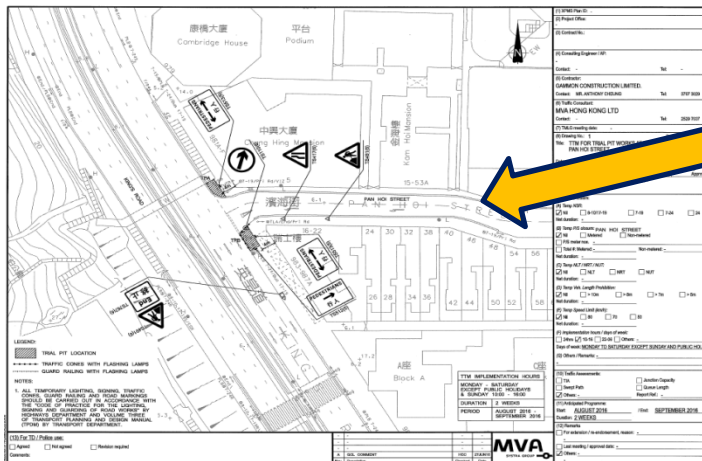
- Gammon BOT -> AI program in mobile phone
- Upload photo & works activity to Online Site Diary Automatically
- No Extra workload
- Productivity & Communication ↑

Gammon BOT compatible in mobile communication app

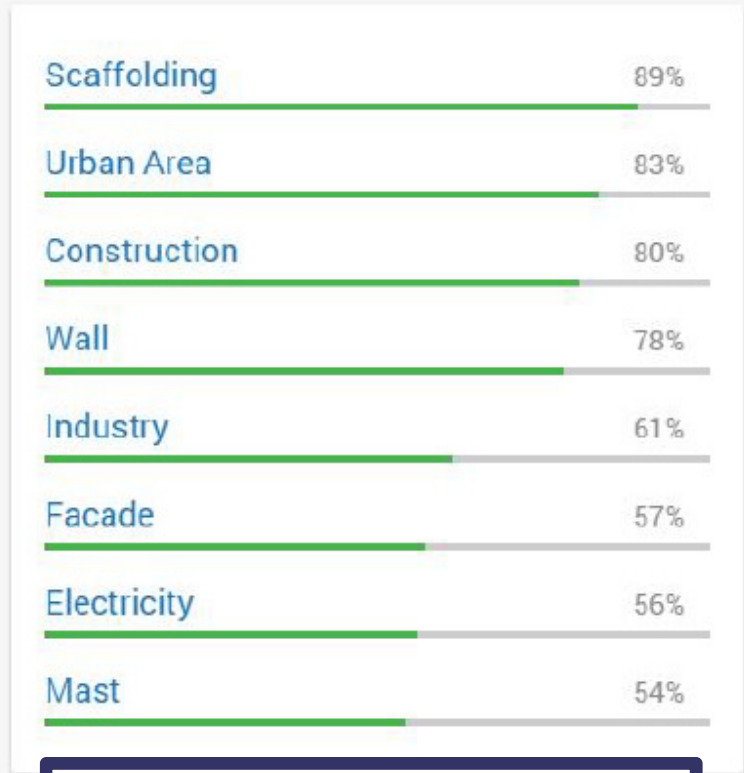
# Gammon BOT – What's More?

User can chat with Gammon BOT to retrieve specified information automatically, for examples:

- Drawing
- Master Programme
- TTM Plan etc.



# Gammon BOT – What’s More?



**Automatically detect items on uploaded photos and categorize online, efficient to retrieve information**



# Gammon Cloud System



**All-in-one Data Cloud**

# Gammon Cloud System



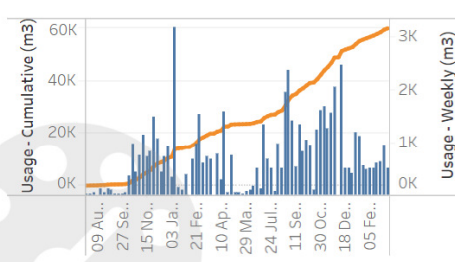
### Handkey In/Out Transaction

Source: **Handkey System**

Handkey In/Out transactions of labour in project within specified date range

[Preview & Download](#)

### Trend of Concrete Usage



Usage - Cumulative (m3) | Usage - Weekly (m3)

[View Dashboard](#)

### Labour Attendance with Allocation Breakdown

Source: **Labour Allocation**

Labour attendance records with allocation breakdown on activity and location for specified project and date range

[Preview & Download](#)

### Concrete Pour Record with Order and Docket Details

Source: **Concrete Management System**

### Labour on Site by Trade Certificate

Source: **JDE**

### Handkey Record Exception

Source: **Handkey System** **JDE**

# Gammon BOT & Gammon Cloud

- High Productivity on Data-Retrieving
  - Minimising Administration Costs
  - Good Record-Tracing
  - Minimising Workload on data-handling
- > Productivity ↑



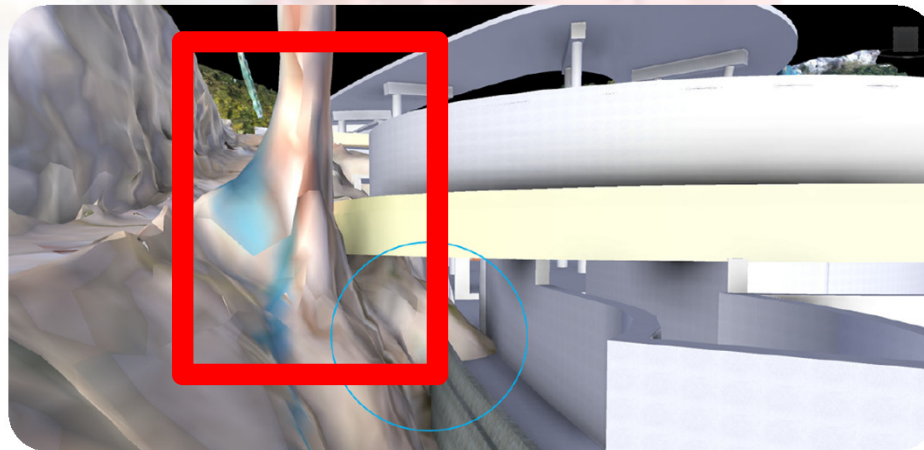
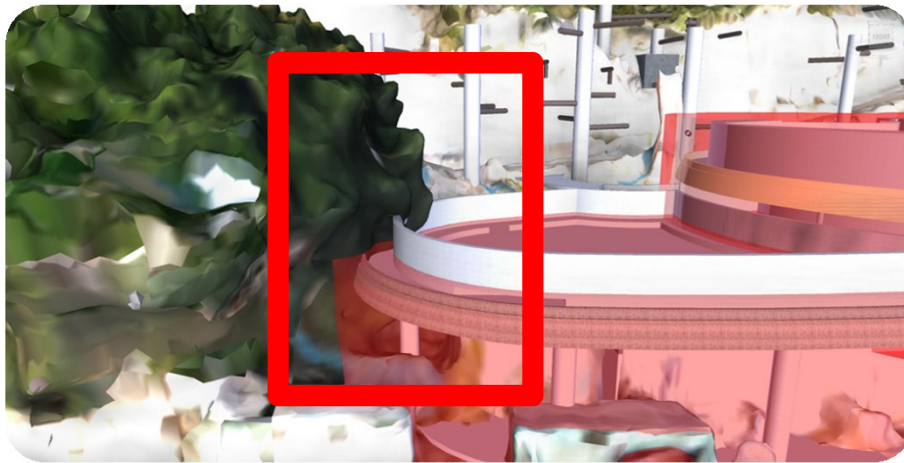
# Cost Management with Building Information Management (BIM)

# BIM & Cost Management

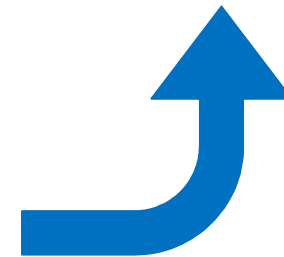


- ✓ Minimising redundancy on labour & plant resources
- ✓ Facilitate pre-work planning, maximising productivity & construction can be streamlined

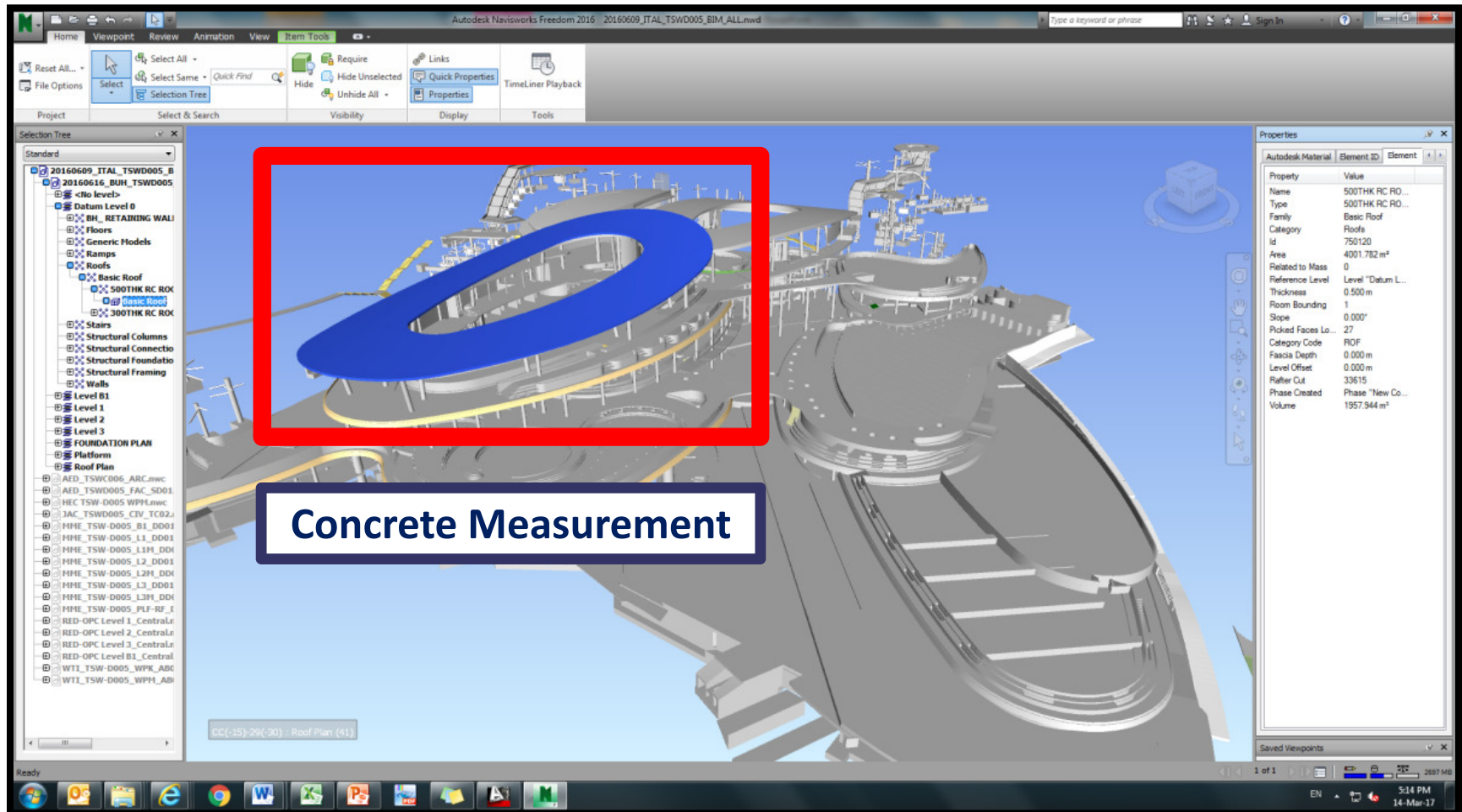
# BIM & Cost Management



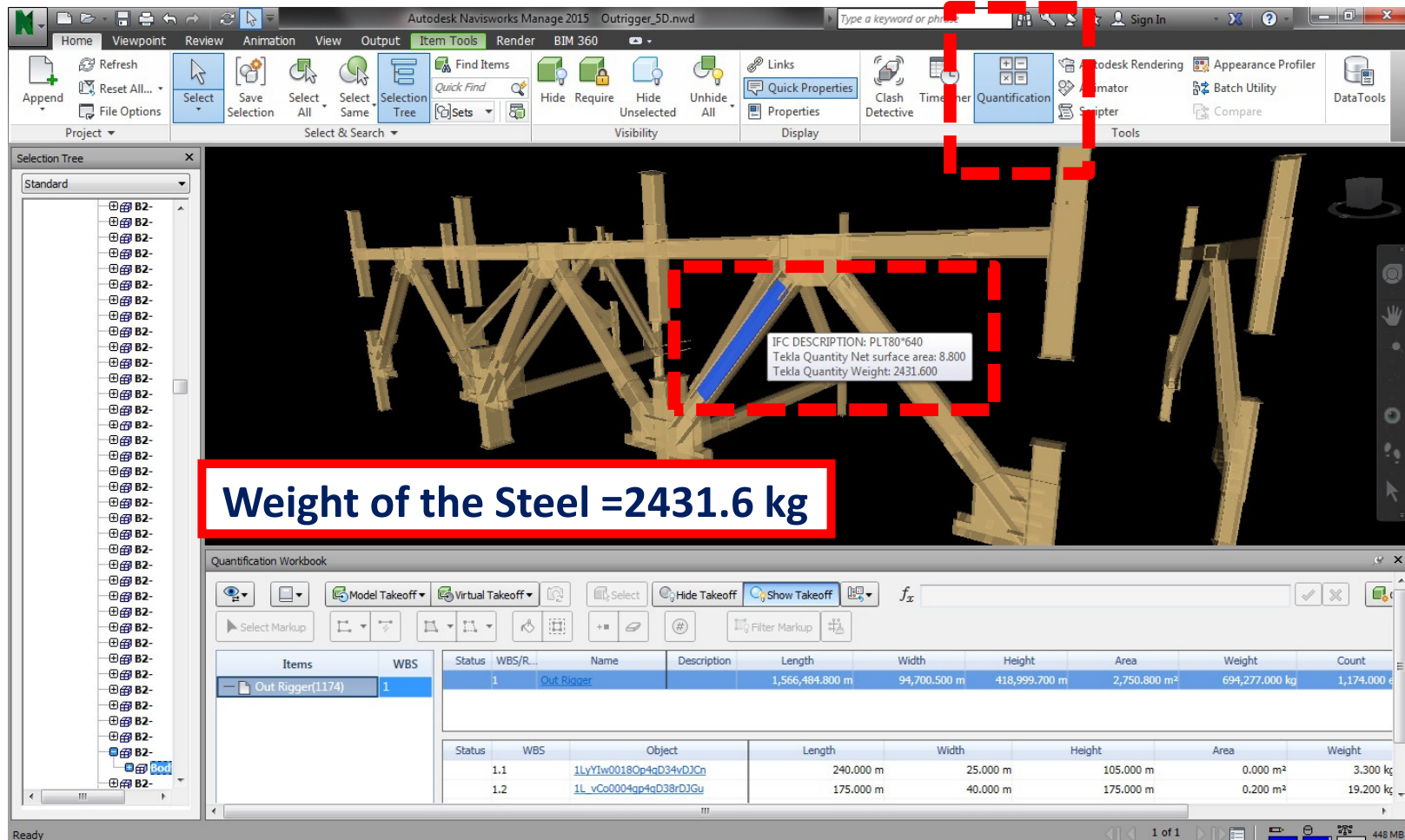
**Optimising  
resources by  
identifying clashes  
early in the design  
and planning stage**



# BIM & Material Cost Management



# BIM & Material Cost Management



The screenshot displays the Autodesk Navisworks Manage 2015 interface. The main view shows a 3D model of a steel structure. A red dashed box highlights a specific beam, with a callout box providing the following information:

- IFC DESCRIPTION: PLT80\*640
- Tekla Quantity Net surface area: 8.800
- Tekla Quantity Weight: 2431.600

A red-bordered box at the bottom of the callout area contains the text: **Weight of the Steel = 2431.6 kg**

The Quantification Workbook at the bottom of the screen shows a table with the following data:

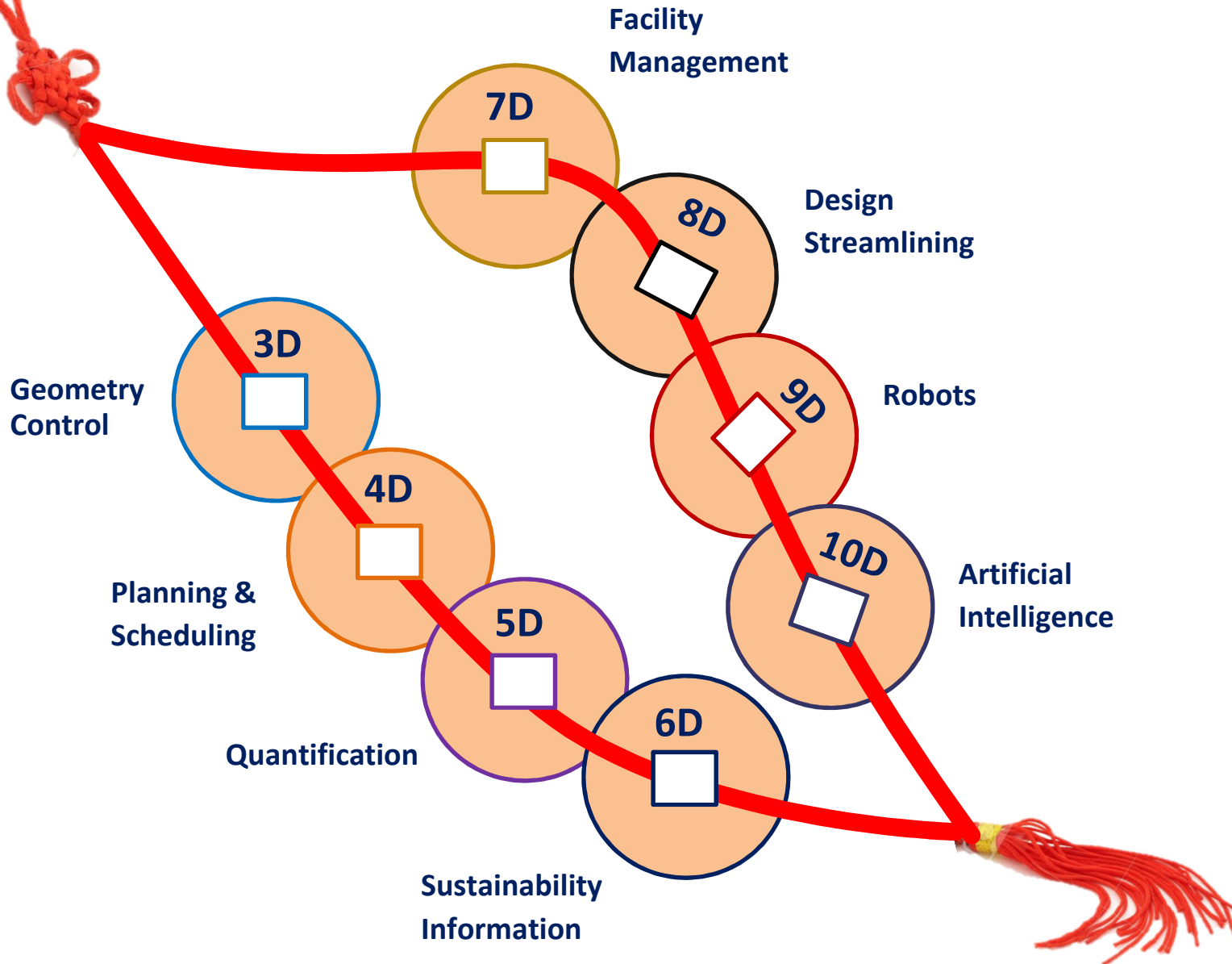
Status	WBS/R...	Name	Description	Length	Width	Height	Area	Weight	Count
1		Out Rigger		1,566,484.800 m	94,700.500 m	418,999.700 m	2,750.800 m <sup>2</sup>	694,277.000 kg	1,174.000

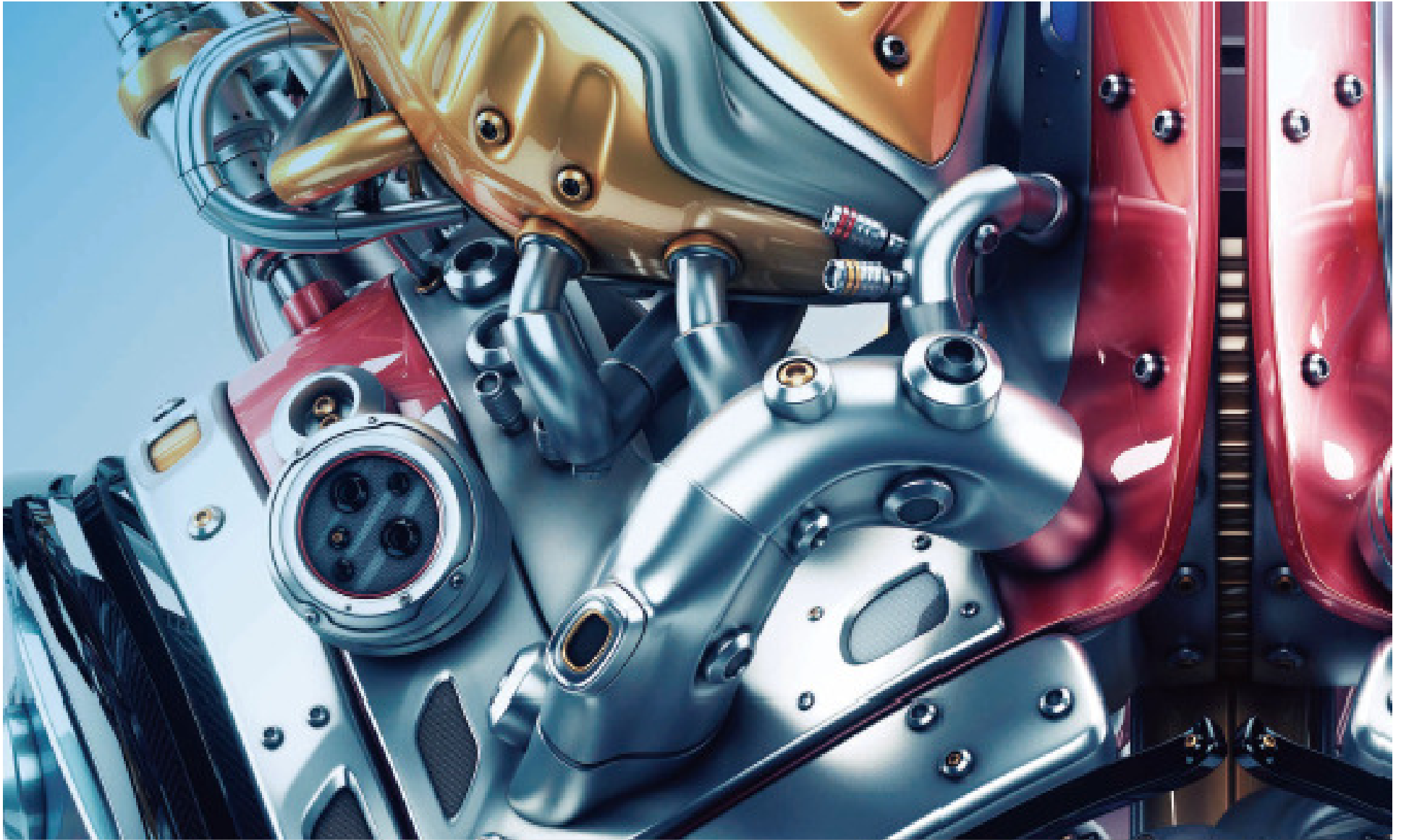
  

Status	WBS	Object	Length	Width	Height	Area	Weight
1.1		1LYYtw0018Op4qD34vDJCn	240.000 m	25.000 m	105.000 m	0.000 m <sup>2</sup>	3.300 kg
1.2		1L_vCo0004gp4qD38rDJGu	175.000 m	40.000 m	175.000 m	0.200 m <sup>2</sup>	19.200 kg



# 10D BIM





**The End**

